

SKS
WELDING SYSTEMS

WELD PACKAGE **DUAL WIRE** 2.0

The **Weld Package** for your Welding Tasks
from the Power Source to the Contact Tip

WATER-COOLED



CONTENT

Power Source • Weld Process
Controller • Software •
Interface • Wire Feeder Unit •
Wire Guidance •
Cable Bundle • Control Cable •
Torch System • Torch Necks •
Consumables

WELDING PROCESSES

Dual Wire 2.0
GMAW
KF-pulse
Pulse
MIG-Brazing

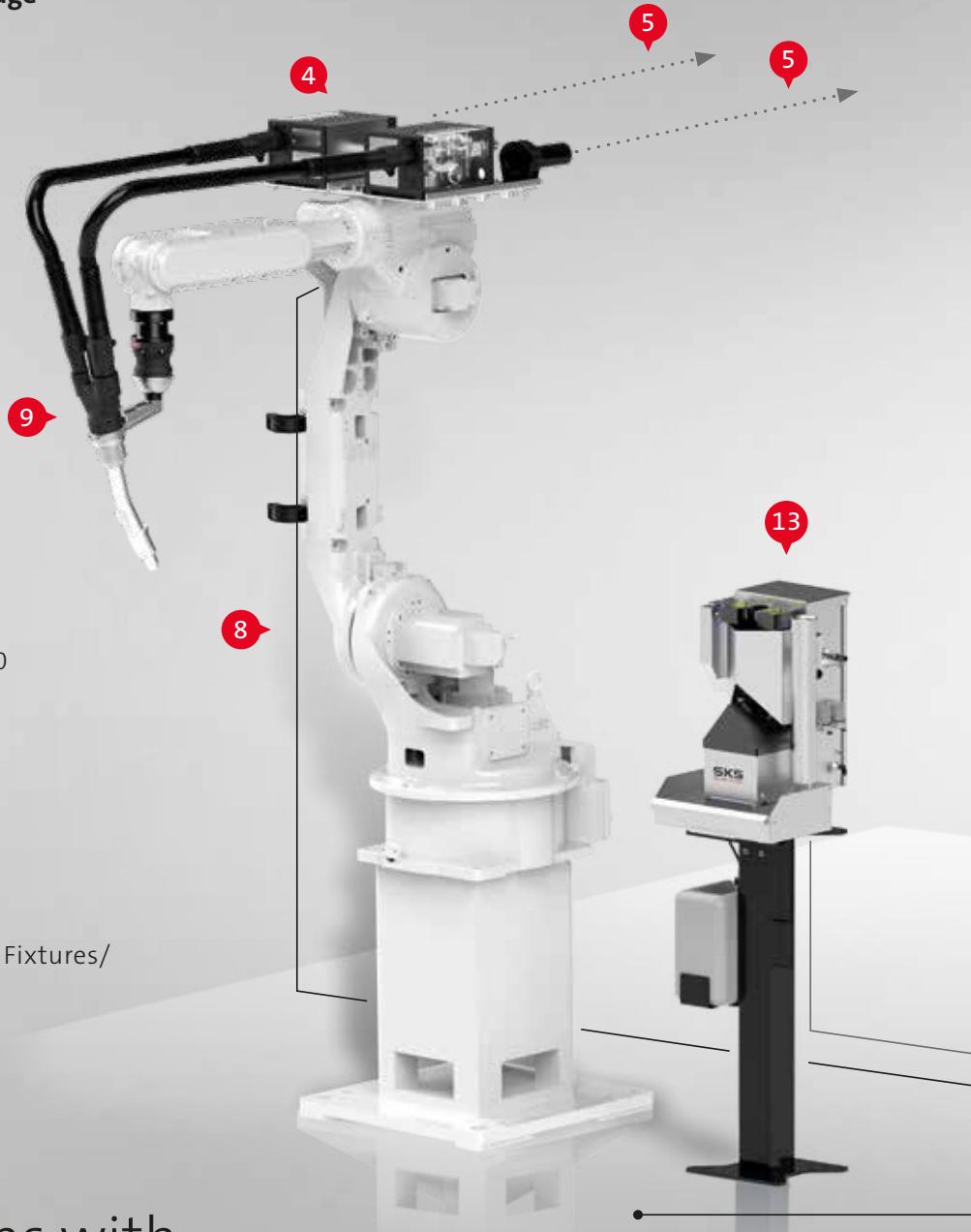


STEEL

SKS Weld Package: System design

The Dual Wire 2.0 Weld Package contains:

- 1 Power Source
- 2 Weld Process Controller and Software/IT
- 3 Robot Interface
- 4 Wire Feeder
- 5 Wire Guidance
- 6 Ground Cable
- 7 Control Cable
- 8 Cable Bundle
- 9 Torch System Dual Wire 2.0
- 10 Torch Neck/Consumables
- 11 Water Cooling
- 12 Reamer Blades
- 13 TCP Dimensions/Checking Fixtures/Torch Cleaning Stations



For installations with outer cable dress.

This brochure contains information about the SKS Weld Package, the torch system Dual Wire 2.0, as well as consumables and spare parts. There are various features of the welding machine components and torch systems available depending on the robot system and the welding task.

The **Dual Wire 2.0 Weld Package** can be used with all common industrial robots.



Dual Wire 2.0 – water-cooled for steel applications

Processes:	Dual Wire 2.0, GMAW, KF-pulse, Pulse, MIG-Brazing
Wire materials:	high-alloy steels, low-alloy steels
Compatibility:	for all common industrial robots
Weight:	7.5 kg
Max. power:	420 A – 60 % duty cycle/40 °C, water-cooled
Wire diameter:	2 x 0.8-1.6 mm
TCP accuracy:	± 0.5 (400 mm)

1 Power source



LSQ5 power source



Interconnect cable and connection pieces



Accessories: Wall mount for LSQ5

Space-saving design that makes for easy cleaning/maintenance.

LSQ5 power source with Direct Control Technology DCT

The LSQ5 ensures the optimum arc energy. It uniquely adjusts to different weld processes. Unlike conventional power sources with inverter technology, the LSQ5 with Direct Control Technology controls its switching transistors without any fixed clock frequency according to the needs of the weld process. Without any delay, the energy needed for the process is provided instantly. The flexible fine tuning is done by a central processor. The CPU continuously analyzes the weld process and current/voltage values on the basis of data obtained and optimally drives the switching transistors of the power section. This results in an extremely high efficiency and a low temperature development.

The power source can be configured with only two buttons and four LED indicators. For world-wide usage, voltages can be configured without opening the power source.

Overview power sources	Part-No.
LSQ5 (single)	77-1185-00
Interconnect cable	77-1180-03
Connection pieces for stacked power sources	77-1180-02
LSQ5-CCC (single)	77-1185-60

Please note:

For a single system two power sources are necessary.

The main benefits are:

- DCT provides a speed regulation up to ten times higher compared to conventional inverter technology. This leads to excellent control behavior and shorter response times.
- The weld properties are substantially improved. Software replaces hardware: Fewer components also increase the reliability in continuous operation.

Specifications	2 x LSQ5 (-CCC)
Performance	840 A - 60% duty cycle/40 °C (400 A)
Processes and functions	GMAW, Pulse, MIG-Brazing
Weight	98 kg
Primary voltage	3 x 400 (480) V
Wall mounting	Yes (optional)
Conformities	CE, CSA, UL (CCC)
Dimensions	450 x 400 x 1080 mm

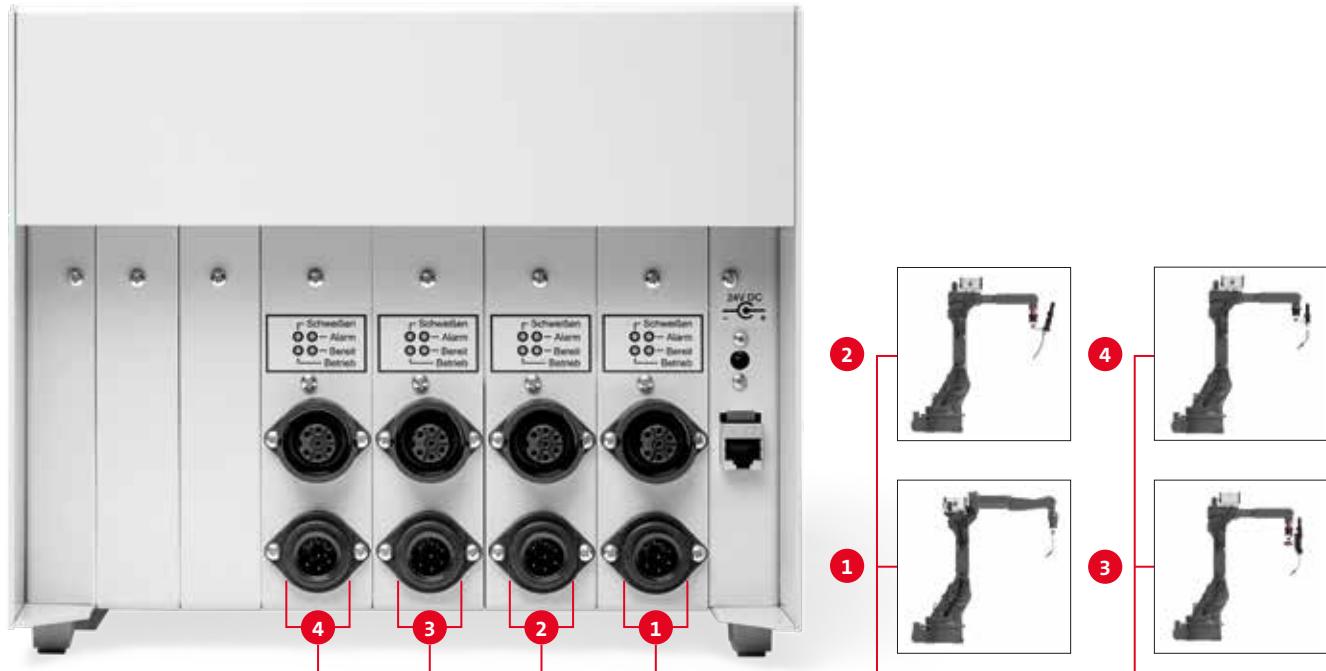
Wall mount

Overview of wall mounts	Part-No.
Wall mount for power source LSQ5 and LSQ5 COMPACT	77-1180-01
Wall mount for power source LSQ3 and LSQ3 COMPACT	integrated

2 Weld process controller

Innovative Control Concepts with Touch Screen.

With the new Q84r and the compact Q84s up to four weld machines can be controlled centrally.



Controlling up to four weld machines at the same time

The new Q84r and Q84s are equipped with a touch screen, an innovative usability concept and an advanced visualization technology for much easier operating. The user interfaces have the look and feel of the Q8Tool4 software. Individual weld process controllers are in card slots in the Q84r/s. This new weld process controller concept can host up to four weld process controller cards. Each card independently controls a weld machine. As an alternative to the Q84r/s weld process controllers, the Q80 has been developed to control a single weld machine.

- **Parameter settings** completely integrated in the SKS software
- **Documentation** of measurements + TCP speed
- ✓ All settings on a single screen
- ✓ All measurements on a single screen
- ✓ All SKS welding processes and functions available
- ✓ Ready to use Industry 4.0 protocols (MQTT + OPC UA) and data traceability!

2 Weld process controller



Q84r weld process controller



Q84r Weld process controller

Please note:

The Q84r/s can be equipped with up to four weld process controller cards.

Weld process controller Q84r/s

The universal weld process controllers Q84r and Q84s calculate the optimal parameters for each welding process. Only basic data such as material, wire type, wire feed speed and type of gas must be entered. The Q84r is equipped with a 10" touch screen, the space-saving Q84s with a 7" touch screen. For wall mounting the display of the Q84s can be rotated by an angle of 180°.

- Processes and functions: GMAW, I-pulse, KF-pulse, microMIG*, microMIG-cc*, MMT-x*, DP-Fast, MIG Brazing, Synchroweld, AutoComp
- Programs: 15.872 (x4)
- General functions: Display and saving of readings, alarms
- Monitoring functions: Weld current monitoring, auto compensation, arc and ignition monitoring, motor current, gas and water monitoring
- Easy to network via Ethernet: Traceability
- Ports: RJ45-Ethernet, SPW-Bus, SD card slot
- Remote Control/Administration: Q8Tool, VNC client
- Supports MQTT / OPC UA

Overview weld process controllers	Part-No.(Q84s)	Part-No. (Q84r)
Q84s/r weld process controller with one weld card	77-7410-001	77-7310-001
Q84s/r weld process controller with two weld cards	77-7420-001	77-7320-001
Q84s/r weld process controller with three weld cards	77-7430-001	77-7330-001
Q84s/r weld process controller with four weld cards	77-7440-001	77-7340-001

Overview Q84r/s mounting kits	Part-No.
Bracket for Q84r for mounting onto power source LSQ3/5	77-7240-01
Mounting brackets for Q80/Q84s for mounting onto power source LSQ3/5	77-7240-06
Bracket for Q84r for wall mounting	77-7240-02
Bracket for Q84r mounting in the robot cabinet	77-7240-05

Overview Q84r/s accessories	Part-No.
Connection cable for Q84r/s 5m with open end (optional)	77-3305-00
Plug for external power supply of Q84r/s	77-7240-96
USB adapter for SD/microSD cards	91-8-1

Overview Q84r/s replacement parts	Part-No.
Touchpen for Q80 / Q84r/s weld process controller (spare part)	77-7240-03
SDHC card 8GB for Q84r/Q84s/Q80 weld process controllers	91-8-6

* Only in combination with Frontpull torch system. Further information can be found in the Frontpull Weld Package.

2 Weld process controller



Q80 weld process controller – front view



Q80 weld process controller – back view

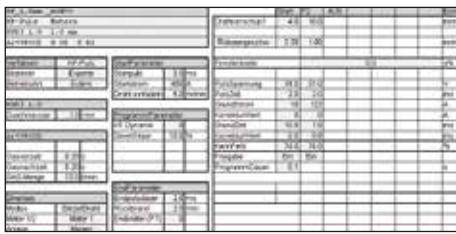
Weld process controller Q80

The Q80 is the alternative to the Q84r/s. It has the same functionality/features as a single weld card of the Q84r/s - optimized for a single weld machine. With the universal Q80 all parameters and values needed for the weld task can be optimally calculated

- Processes/functions/general functions see Q84r/s
- Easy to network via Ethernet: up to traceability
- Ports: RJ45-Ethernet, SPW-Bus, SD card slot
- Wall mounting capability
- Remote Control / Administration: Q8Tool
- Supports MQTT / OPC UA

Overview weld process controller	Part-No.
Q80 weld process controller	77-7260-001
Overview Q80 mounting kits	Part-No.
Bracket for mounting onto power source LSQ5	77-7240-06
Overview Q80 accessories	Part-No.
USB adapter for SD-/microSD card	91-8-1
Overview Q80 replacement parts	Part-No.
Touchpen for Q80 / Q84r/s weld process controller (replacement part)	77-7240-03
SDHC card 8GB for Q84r/Q84s/Q80 weld process controllers	91-8-6

2 Software/IT



Q8Tool software

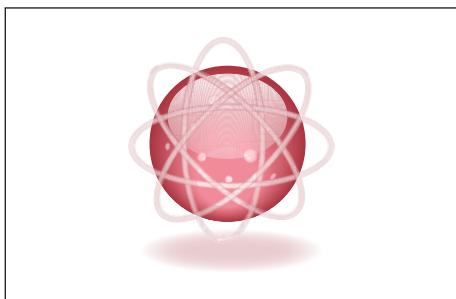
The Q8Tool software provides accurate and comprehensive process monitoring. The user can store weld parameters for documentation on a PC and/or administrate them. It offers basic functions such as reading, modifying and documenting of weld parameters.

Additionally, new weld parameters can be created and transferred to the universal weld process controllers. The weld data is portable and the installation of further control units on new equipment is easy. Also, the software allows reading and exporting of measurements and alarms. Graphical and numerical recording of measures helps defining and optimizing parameters for new parts. Users have a powerful tool for analyzing and documenting their weld results.



Network

The weld process controller units can easily be networked via Ethernet ports: Time savings through centralized administration of all controllers within the corporate network. There is a central backup of all welding parameters, management of user rights and access, process monitoring up to traceability. The Q8Tool software is provided free of charge with the weld process controller. No additional hardware or software is required.



3 Robot interface

Perfect integration.

Interfacing all industrial robot types.



By the use of Fieldbus Interface FB5 the system can be perfectly integrated into existing Fieldbus environments. For analog and digital environments the universal interface UNI5 is available on request.

Standard application

Fieldbus systems exchange signals via serial communication. The Fieldbus master, usually the robot controller or overall system controller, bundles and processes the signals of the connected Fieldbus, including the welding machine. Standard Fieldbus systems are e.g., Interbus-S, Profibus DP or DeviceNet.

The Fieldbus interface FB5 translates the Fieldbus signals for the welding machine using a standardized protocol. It makes no difference which type of Fieldbus system is used. The signals are always at the same place on the Fieldbus. This makes the preparation of the robot or system controller much easier.

3 Robot interface



FB5 Fieldbus Interface: mounting onto the power source



FB5 Fieldbus Interface: mounting onto the cabinet

Fieldbus application

Various Fieldbus types are supported (e.g. Profibus DP, DeviceNet). The Fieldbus interface has drilled bore holes for flexible mounting within the weld cell. Two additional mounting kits provide easy installation at the power source or into the cabinet. Additionally, external power can be connected to the interface. More details on solutions for the specific Fieldbus types are available on request.

Overview FB5 interfaces	Part-No.
Fieldbus interface FB5 Interbus-S (copper line)	77-3-1
Fieldbus interface FB5 Profibus DP	77-3-2
Fieldbus interface FB5 DeviceNet	77-3-3
Fieldbus interface FB5 EtherCAT	77-3-4
Fieldbus interface FB5 Profinet IRT (copper line)	77-3-5
Fieldbus interface FB5 Profinet IRT (LWL 2 Port)	77-3-6
Fieldbus interface FB5 Interbus-S (LWL FSMA)	77-3-7
Fieldbus interface FB5 Ethernet/IP	77-3-8

Cabinet mounting	Part-No.
Mounting kit for cabinet	77-1182-02
Cabinet cable 2m FB5 with device plug and cable socket	77-3102-02

Power source mounting	Part-No.
Bracket for FB5/Q6pw for mounting onto LSQ3/5	77-1182-03

Optional power supply (24V)	Part-No.
Connection cable 2.0 m (with open end)	77-1182-04

SYNCHROWELD

Synchroweld unites the weld system and robot by a communication protocol (RWDE). This technology allows the weld system to get the actual robot speed and automatically adjusts the weld parameters and laser power within defined limits. The result is a constant energy per unit length. At the same time, the programming effort can be significantly reduced.

Please note:

Further information on Synchroweld with ABB, Fanuc, KUKA, Yaskawa can be found in our Synchroweld brochure.

4 Wire Feeder

Strong, lightweight and precise.

The PF6 wire feeder.

Smaller and with less weight accompanied by improved efficiency over conventional wire feeders the PF6 goes along with the steady development of arc welding robots.



Power Feeder PF6



The industrially proven wire feeder PF6 has been enhanced with an additional control and monitoring function - an integrated gas regulation system in addition to the gas flow sensor. The ability to regulate gas flow for the actual weld seam is a crucial factor for seam quality. This also leads to cost savings, as only the amount of gas currently required is passed through the torch system. The proven gas flow sensor, used to monitor the flow rate, is also implemented in this wire feeder variant. Especially with complex components, not having the required gas flow rate can result in high costs, as the component may become unusable - in the best case, it can only be salvaged through extensive rework. The target and actual gas quantities can be read on the welding process control system. Additionally, an alarm can be triggered if the values fall below or exceed the set limits.

Overview PF6

	Part-No.
PF6 L wire feeder	10-3-8
PF6 R wire feeder	10-3-4
PF6 L wire feeder with integrated gas regulation	10-3-508
PF6 R wire feeder with integrated gas regulation	10-3-504

Specifications

Weight	4.1 kg
Motor	70 W
Wire feeding speed [v]	2.5 - 25 m/min
Drive roll for wire diameter	0.8 - 1.6 mm

Mittelführung

Die Mittelführung dient zur definierten Führung des Schweißdrahtes im Vierrollenantrieb.

Übersicht Mittelführungen

	Part-No.
Mittelführung f. Drahtvorschub PF5/6, Stahl Draht-Ø 0,8-1,6mm	12-2-1-15



4 Wire Feeder



Drive roll

Our drive rolls are available in several groove shapes for different welding filler materials (V-groove for steel and knurled U-groove for filler wire applications).

Overview drive rolls	Part-No.
Wire-Ø 0.8 mm, V-groove	12-2-3-08
Wire-Ø 0.9 mm, V-groove	12-2-3-09
Wire-Ø 1.0 mm, V-groove	12-2-3-10
Wire-Ø 1.2 mm, V-groove	12-2-3-12
Wire-Ø 1.4 mm, V-groove	12-2-3-14
Wire-Ø 1.6 mm, V-groove	12-2-3-16

Please note:

Four drive rolls per system are needed.

Please note:

Drive rolls for wires in inch sizes available on request.



Pressure roll

The pressure roll ensures a defined pressure of the welding wire into the specific groove shape of the drive roll.

Overview pressure rolls	Part-No.
Pressure roll – DIN 625 T1 for PF5/6 wire feeder series	12-2-3-0
Locating bolt for pressure roll on two/four roller drive	12-13-5

Please note:

Two pressure rolls and two locating bolts are needed per system.



Wire feeder bracket

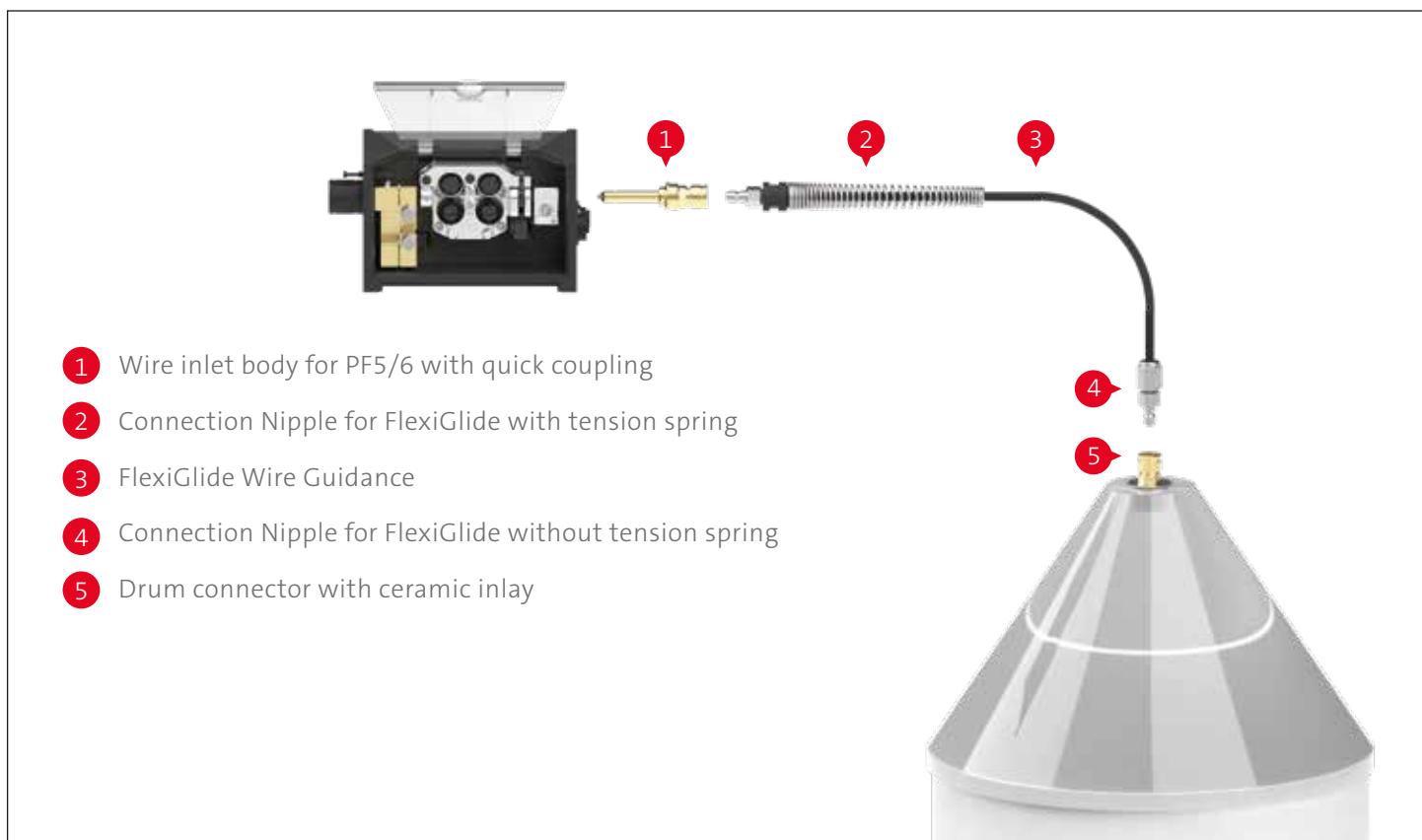
For easy and quick installation every wire feeder bracket is prepared with robot specific mounting patterns and also includes all necessary mounting materials.

Overview wire feeder brackets	Part-No.	
For robot type-ABB (single wire)		
IRB 2600-12/1.85	14-2-8	
IRB 4600-40/2.55	14-2-19	
For robot type-FANUC (single wire)		
AM 100iD / AM 120iD / M-10iD/8L / M-20iD/12L	14-1-27	
For robot type-KUKA (single wire)		
KR 12 R1810-2/ KR 16 R2010-2/ KR 20 R1810-2		14-3-3
KR 16 R1610-2		on request
For robot type-YASKAWA (single wire)		
AR 2010 / AR 3120 / GP 20 / GP 25-12		14-1-27

Please note:

Wire feeder brackets for further robot types are available on request.

5 FlexiGlide wire guidance



FlexiGlide Wire Guidance

Please note:

Further information can be found in our brochures "FlexiGlide" (PIN-0168) and "Wire guidance" (DOC-0193).

SKS Wire guidance FlexiGlide with a high limit of elasticity and very low friction. The constructive design, a coil made from chrome/nickel spring steel with a plastic coating, creates robustness, resulting in a high lifetime.

Benefits with FlexiGlide:

- Optimized for use in robotic applications
- High lifetime
- Very low friction
- Flame retardant and abrasion resistant

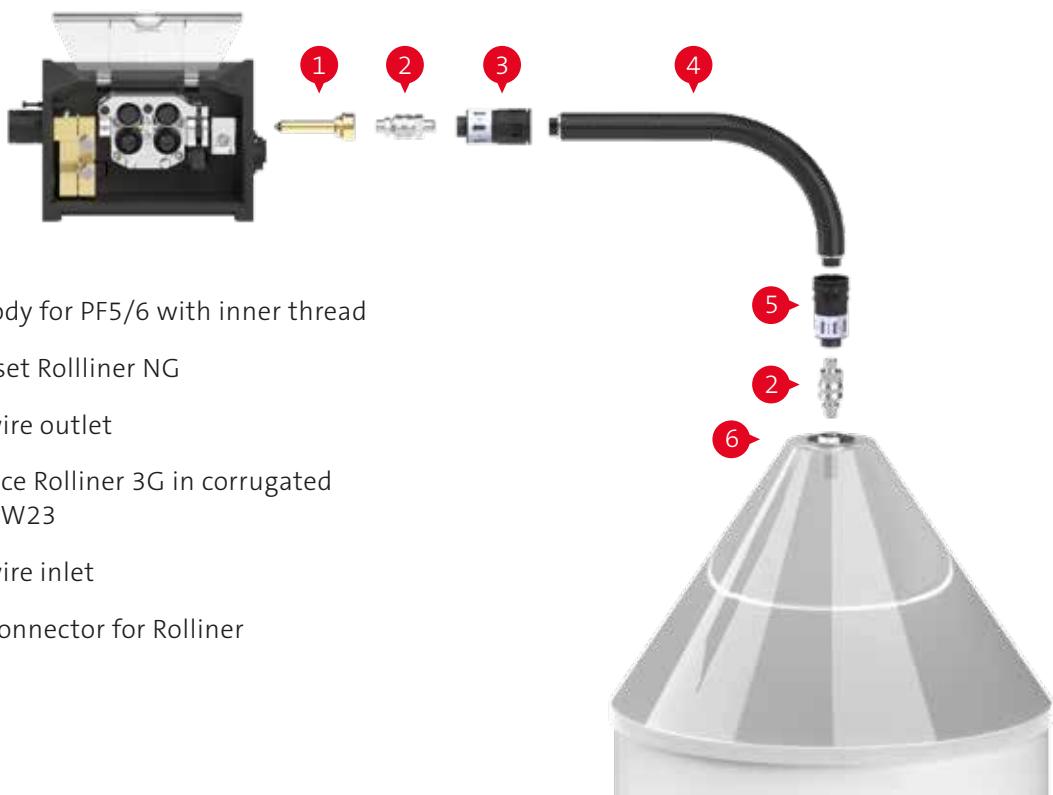
FlexiGlide wire guidance

Overview of FlexiGlide wire guidance	Part-No.
Wire Inlet Body for PF5/6 with Quick-Connector	10-2-0-61
Connection Nipple insulated for FlexiGlide with tension spring	44-3-11
FlexiGlide wire guidance, Type B, per meter	44-3-1
Connection Nipple for FlexiGlide without tension spring	44-3-4
Drum Connector with ceramic inlet	44-40-1

Option

Overview strain-relief on wire guidance	Part-No.
Strain-relief for wire guidance on wire feeder bracket	14-10-6
Through-Wall Mount for wire guidance FlexiGlide incl. suspension	44-3-8
Wall Duct for FlexiGlide wire guidance	44-3-9

5 Rolliner 3G wire guidance



- 1 Wire inlet body for PF5/6 with inner thread
- 2 Connection set Rolliner NG
- 3 Connector wire outlet
- 4 Wire Guidance Rolliner 3G in corrugated tube black NW23
- 5 Connector wire inlet
- 6 Wire drum connector for Rolliner

Rolliner 3G Wire guidance is suitable for all applications where higher wire feeding requirements are needed.

Benefits:

- Optimized sliding properties with roller-supported wire guidance
- High flexibility due to segmentation of roller parts
- Suitable for use in harsh environments
- Universally application (steel, stainless steel, filler wire, aluminum)

Option

Overview of strain-relief on wire guidance	Part-No.
Strain-relief wire guidance for Rolliner	14-10-8
Clamping Piece Rolliner 3G on Cable Bundle -W-	44-60-48

Please note:

Two connection sets are needed.

Overview of Rolliner 3G wire guidance

	Part-No.
Wire inlet body for PF5/6 with $\frac{1}{4}$ " NPTF inner thread	10-2-0-60
Connection set Rolliner NG for drum or wire feeder	44-60-21
Connector wire outlet for Rolliner 3G	44-60-42
Mounting clip for Rolliner 3G	44-60-45
Wire Guidance Rolliner 3G per meter	44-60-40
Corrugated tube PUR black NW23 per meter	91-3-2
Connector wire inlet for Rolliner 3G	44-60-41
Wire drum connector for Rolliner NG	44-60-30

Alternative



Wire inlet bodies for additional systems

Beside the wire inlet body for the SKS wire guidance, inlet bodies for additional systems are available.

Overview of wire inlet bodies for additional systems	Part-No.
Wire inlet body for PF5/6 with M10 internal thread for ESAB	10-2-0-50
Wire inlet body for PF5/6 with 9.6 mm bore hole	10-2-0-52
Wire inlet body for PF5/6 with 13 mm bore hole	10-2-0-53
Wire inlet body for PF5/6 with PG9 thread	10-2-0-56
Wire inlet body for PF5/6 with internal thread $\frac{1}{4}$ " NPTF	10-2-0-60

6 Ground cable



Please note:

Two ground cables per system are needed. Further lengths and diameters available on request.

Ground cable with 70 mm² connector and cable lug

The use of highly pure copper reduces the electric resistance supporting the welding process. Manufactured as of DIN VDE 0285-525-2-81 / DIN EN 50525-2-81.

Overview of ground cables	Part-No.
Ground cable 70 mm ² 6 m with DIX plug and cable lug	228078106
Ground cable 70 mm ² 10 m with DIX plug and cable lug	228078100

Option

Overview of ground cables	Part-No.
Ground cable 95 mm ² 6 m with DIX plug and cable lug	228080106
Ground cable 95 mm ² 10 m with DIX plug and cable lug	228080110

7 Control cable



Please note:

For the Dual Wire 2.0 system four control cables are needed. One control cable is already included in the cable bundle.

Please note:

Further lengths available on request.

Control cable: L700/SPW-Bus

One cable to connect power source, weld process controller, interface and frontpull module. By use of one cable stock and installation is simplified. The power is supplied via this cable. An external supply is not necessary.

Overview of control cables	Part-No.
Control cable 0.5m L700/SPW-Bus	541031050
Control cable 1m L700/SPW-Bus	541031001
Control cable 2m L700/SPW-Bus	541031002
Control cable 3m L700/SPW-Bus	541031003
Control cable 5m L700/SPW-Bus	541031005
Control cable 7m L700/SPW-Bus	541031007
Control cable 10m L700/SPW-Bus	541031000
Control cable 12m L700/SPW-Bus	541031012
Control cable 15m L700/SPW-Bus	541031015

Plug & Play: Control cable L700

The advantages of a system concept are revealed by its details: One standard control cable (L700) connects all system components (power source, robot interface, weld process controller and wire feeder) within the welding system. The system is expandable: Other components can be integrated at any time into an existing system. New devices are automatically detected.



Power Source



Robot Interface



Weld Process Controller



Wire Feeder

8 Cable bundle



Cable bundles: Power source to PF6

Coaxial power cable 72 mm² with internal gas flow, control cable L700, corrugated tube and cable holder. Water-cooled version.

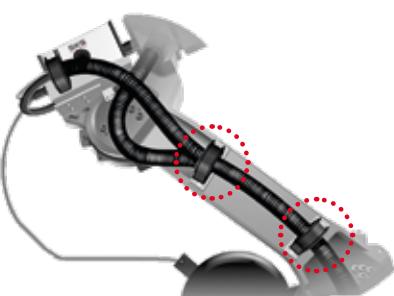
Overview of cable bundles	Part-No.
Cable bundle 72mm ² 5m -W- LSQ-PF5/6	20-8-5
Cable bundle 72mm ² 7m -W- LSQ-PF5/6	20-8-7
Cable bundle 72mm ² 10m -W- LSQ-PF5/6	20-8-10

Overview of cable bundles with air-blast function	Part-No.
Cable bundle 72mm ² 5m -W- LSQ-PF5/6 with air-blast function	20-23-5
Cable bundle 72mm ² 7m -W- LSQ-PF5/6 with air-blast function	20-23-7
Cable bundle 72mm ² 10m -W- LSQ-PF5/6 with air-blast function	20-23-10
Air blast valve for mounting on the wire feeder bracket	93-50

Please note:

Further lengths available on request.

8 Cable bundle: Clamping set



Mounting cable bundle: clamping set -W-

Provides perfect installation of the cable bundle for all different robot types. Undesired cable movements are prevented. This results in higher lifetime.

Overview of clamping sets	Part-No.	For robot type-KUKA
For robot type-ABB		
IRB 2600-12/1.85 / I RB 4600-40/2.55	91-3-0-51-4	KR 12 R1810-2 / KR 20 R1810-2

For robot type-FANUC	Part-No.	For robot type-YASKAWA
AM 100iD / AM 120iD / M- 20iD/12L	91-3-0-51-15	AR 2010 / GP 25-12
M-10iD/8L	on request	AR 3120
		GP 20

Please note:

Clamping sets for further robot types are available on request.

Alternative

Mounting for WF-bracket	Part-No.
Mounting for WF-bracket for external guided cable bundle	14-10-10

8 Dividable cable bundles

Alternative



1



2

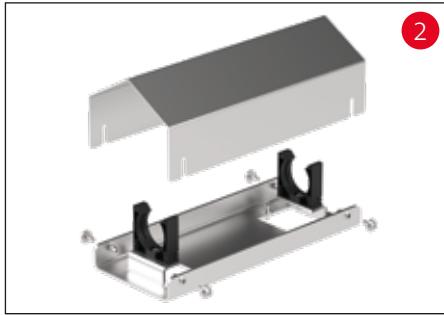


3



70 mm² Connection from power source to connection bracket -W-

Length	Part-No.	Part-No. (with air-blast function)
5 m	20-18-5	20-28-5
7 m	20-18-7	20-28-7
10 m	20-18-10	20-28-10



Connection bracket for cable bundles (PF5/6) -W-

	Part-No.
Connection bracket	20-17-0-3



Connection 72 mm² from connection bracket to PF5/6 -W-

Length	Part-No.	Part-No. (with air-blast function)
3 m	20-17-3	20-24-3
5 m	20-17-5	20-24-5
7 m	20-17-7	20-24-7

Please note:

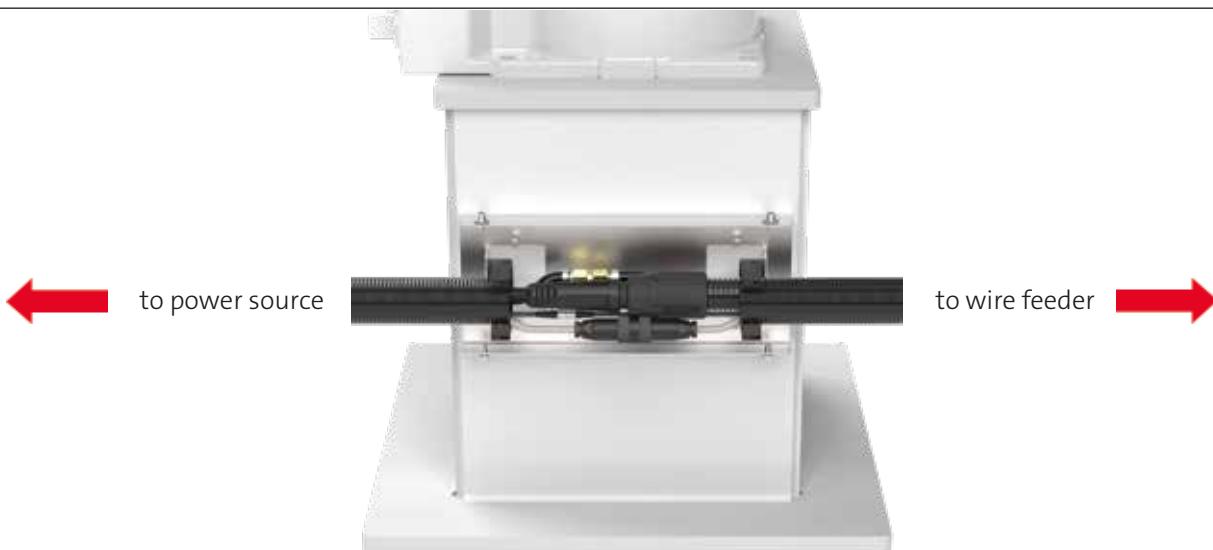
Further lengths available on request.

Please note:

For use of the air blast function the air blast valve (Part-No. 93-50) is required.

Cable bundle with separation between power source and wire feeder PF6

The moving parts of the cable bundle (next to the robot) are separated from the non-moving parts (power source). In case of maintenance work, only the moving parts have to be changed. The quick and easy replacement concept results in time and cost savings.



9 Torch system Dual Wire 2.0

High welding speed and high deposition rate.



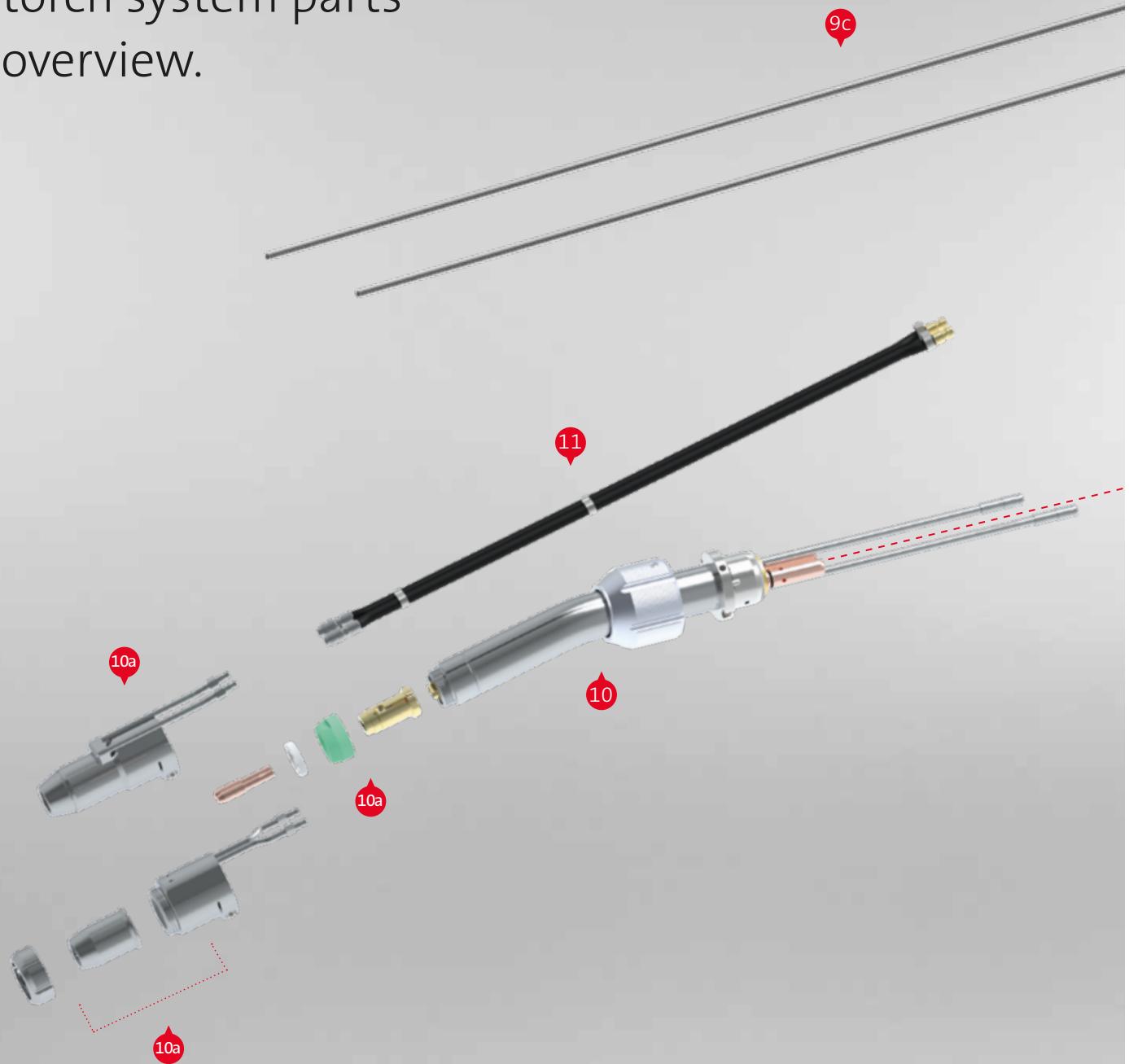
With the torch system Dual Wire 2.0, materials thicker than 3 mm can be joined fast and easy. The bajonet quick change system is integrated into the torch, so this new torch system supports a toolless change of the torch neck; this with a guaranteed TCP of ± 0.5 mm. We integrated two separate cooling circuits to increase the operational time of the welder and achieve a better cooling effect with this separation. The heat at the gas nozzle is already reduced and doesn't reach the torch. With its parallel wires and its round gas nozzle, the system is easier to clean and much easier to program, especially in curves.

Dual Wire 2.0 – water-cooled for steel applications

Processes:	Dual Wire 2.0, GMAW, KF-pulse, Pulse, MIG-Brazing
Wire materials:	high-alloy steels, low-alloy steels
Compatibility:	for all common industrial robots
Weight:	7.5 kg
Max. power:	420 A – 60 % duty cycle/40 °C, water-cooled
Wire diameter:	2 x 0.8-1.6 mm
TCP accuracy:	± 0.5 (400 mm)

9 Torch system Dual Wire 2.0: Parts overview

Dual Wire 2.0 torch system parts overview.



9a Collisions Detection Power Clutch HD **9b** TCP-Extension + Robot Flange
9c Torch cable and Accessories **9d** Torch Mounting Arm **10** Torch Neck
10a Consumables **11** Water Cooling

9 Torch system Dual Wire 2.0: Parts overview



9a Torch system: Collision Detection



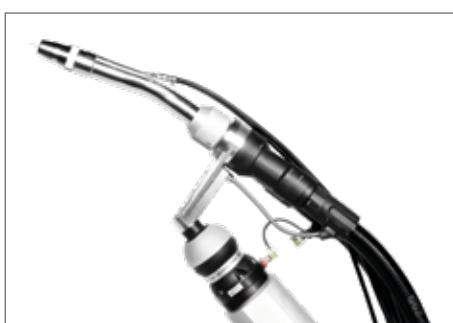
Collision Detection Power Clutch HD

The SKS collision protection is based on the Power Joint concept, continuing the modular structure of the SKS components. This ensures the same high precision TCP accuracy in the Dual Wire 2.0 as found in SKS Power Joint systems.

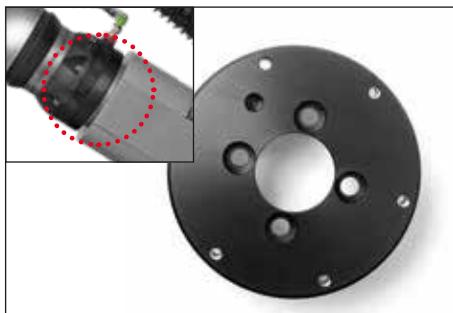
Power Clutch HD	Part-No.
Power Clutch 2 HD	71-16

Technical details

Collision protection	deflection 10°
Reset accuracy	± 0.5 mm with TCP 400 mm
Weight	1.5 kg



9b Torch system: Robot mounting



Dual Wire 2.0 robot flange

With the robot flange the Dual Wire 2.0 torch system is mounted simply and safely on the sixth robot axis.

Overview of robot flanges	Part-No.
For robot type-ABB IRB 2600-12/1.85 / IRB 4600-40/2.55	63-4-5
For robot type-FANUC AM 100iD / AM 120iD / M-10iD/8L / M-20iD/12L	63-4-24
For robot type-KUKA KR 12 R1810-2 / KR 16 R1610-2 / KR 16 R2010-2 / KR 20 R1810-2	63-4-3
For robot type-YASKAWA AR 2010 / AR 3120 / GP 25-12 GP 20	63-4-8 63-4-1

Please note:

Connection flanges for further cobots are available on request.



TCP-extension

The TCP-extension increases the freedom of accessibility and depth of immersion into the weld part/fixture.

Overview TCP-extension	Part-No.
50 mm	93-29

9c Torch system: Torch cable and accessories



Please note:

Pro System sind zwei Brennkabel notwendig.
Brennkabel für weitere Robotertypen on request
erhältlich.

Torch cable for Dual Wire 2.0 torch system

Highly flexible coaxial cable 72 mm² with Power Pin and Power Clutch connector including switch-off cable for the robot

Overview recommended torch cable lengths for robots	Part-No.
For robot type-ABB	
IRB 2600-12/1.85	61-5-10
IRB 4600-40/2.55	61-5-18
For robot type-FANUC	
AM 100iD	61-5-10
AM 120iD	61-5-12
M-10iD/8L / M-20iD/12L	61-5-15
For robot type-KUKA	
KR 12 R1810-2 / KR 20 R1810-2	61-5-135
KR 16 R1610-2 / KR 16 R2010-2	on request
For robot type-YASKAWA	
AR 2010	61-5-12
AR 3120	61-5-20
GP 20	61-5-10
GP 25-12	61-5-15
Overview torch cable length	
0.75 m	61-5-075
0.9 m	61-5-09
1.0 m	61-5-10
1.2 m	61-5-12
1.35 m	61-5-135
1.5 m	61-5-15
1.8 m	61-5-18
2.0 m	61-5-20
2.4 m	61-5-24

Liner for torch system

For the following diameters and filler materials:

Steel, bronze (wire-Ø 0.8 - 1.0 mm)	Part-No.
Length 2 m	44-24-0810-20
Length 3.5 m	44-24-0810-35
Sleeve	44-30-2
Steel, bronze (wire-Ø 1.2 - 1.6 mm)	
Length 2 m	44-24-1216-20
Length 3.5 m	44-24-1216-35
Sleeve	44-30-3

Please note:

Two liners and two sleeves are required for a single system. Additionally, two power pin caps are required when using aluminum wire.

Y-Wire guidance

Wire guidance for defined guidance of both torch cables

Y-Wire guidance	Part-No.
Y-Wire guidance	91-3-0-90



9d Torch system: Torch mounting arm

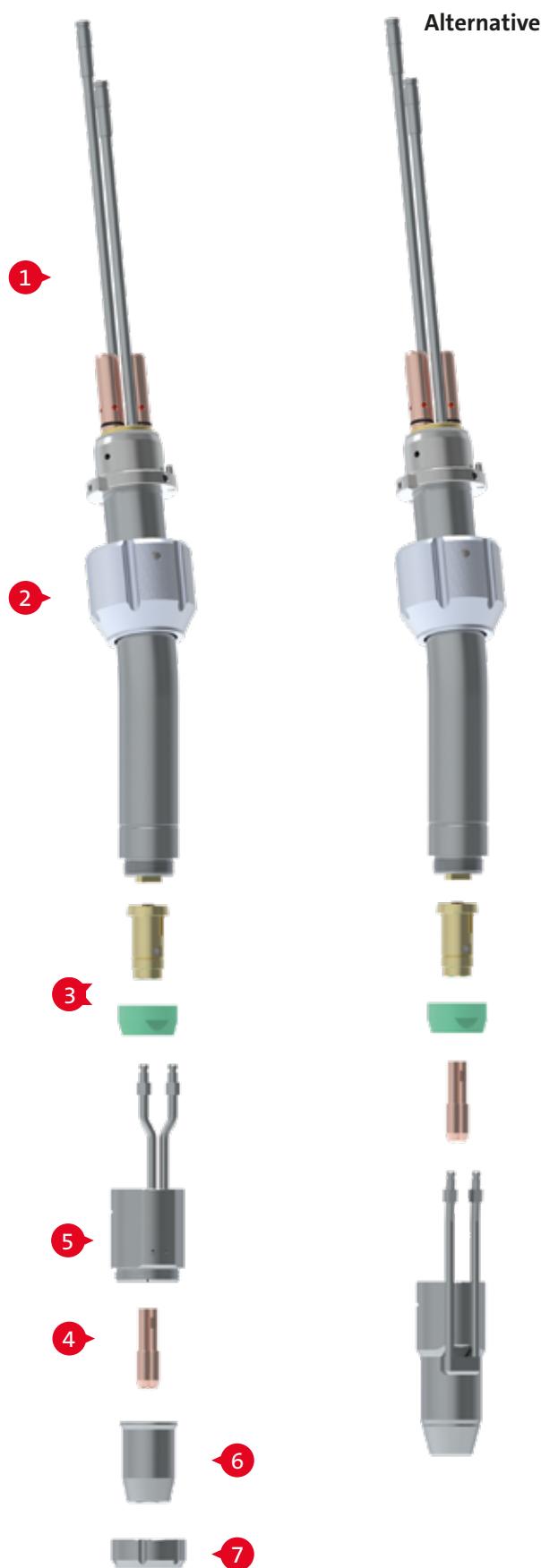
Dual Wire 2.0: Torch mounting arm

Precise torch body with mounting arm, air blast connector and proven bayonet quick-changeconnectors for torch cable and torch neck

Torch mounting arm	Part-No.
Torch mounting arm	54-5-1



10 Torch necks



Info:

The torch neck of the Dual Wire 2.0 torch system can be configured with two different types of gas nozzles: For standard or heavy duty applications.



Configuration:
Standard (560 A 60 % ED/40 °C)

Configuration:
Hochleistung (840 A 60 % ED/40 °C)

10 Torch necks: Accessories

1



Torch necks for Dual Wire 2.0

SKS torch necks for easy installation with the innovative bayonet lock system for quick replacement. Aside from a toolless change of the torch neck, a TCP ± 0.5 mm is guaranteed. Two separated cooling circuits (torch neck and consumables) provide high cooling efficiency.

Overview torch necks

TCP in mm

Part-No.

Torch neck 15° (complete system 30°) /
550 with retaining head and clamping nut

54-5-5-15-550-1-1

Clamping cap

54-5-2-9

Further information about cooling with ordering numbers can be found in section 11.

* Please note:

For aluminum applications
SKS recommends a Frontpull torch system.

Advantages of SKS Dual Wire 2.0 System

Welding with a single potential enables the use of a round gas nozzle with parallel wires. The advantages:

- Smaller dimensions for better accessibility in different positions (punching, dragging)
- Easier programming
- Use of standard cleaning equipment
- Just a single Weld Process Control is necessary for the whole process. Moreover the entire system is realized with standard components. This makes the operation much easier and reduces investment.

2



10a Torch necks: Consumables

3



Retaining head and clamping nut (spare part)

Heavy duty retaining head

Overview retaining head

Part-No.

Düsenstock (Ersatzteil)

54-5-2-12

Isolierring Doppeldraht

54-5-5

Contact tip

- Improved heat transfer extends lifetime
- Improved power transition: constant arc qualityng

4



Overview of contact tip

Part-No.

0.9 m

54-5-8-0.95

1.0 m

54-5-8-1.05

1.2 m

54-5-8-1.25

1.4 m

54-5-8-1.45

1.6 m

54-5-8-1.65

Please note:

Two contact tips are required for a single system.

Please note:

Lengths in inches available on request.

10a Torch necks: Consumables



Cooling jacket for consumables

Extra cooling of consumables

Cooling jacket	Part-No.
Cooling jacket for nozzles	54-5-70-1



Standard gas nozzles

Overview gas nozzles	Part-No.
tapered, flush, ø 18 mm	54-10-18-TF
tapered, long, ø 18 mm	54-10-18-TR

Please note:

An overview with dimensions can be found on the last page.



Lock nut for gas nozzle

For fixation of the gas nozzle at the cooling jacket

Lock nut	Part-No.
Lock nut	54-5-70-2

Alternative



Heavy duty gas nozzle with direct cooling

When using the HD gas nozzle the parts 5, 6, 7 are not needed.

Heavy duty gas nozzle with direct cooling	Part-No.
tapered, long, ø 18 mm	54-11-18-TR
tapered, long, ø 20 mm	54-11-20-TR

Option



Gas diffuser Dual Wire 2.0

Gas diffuser	Part-No.
Ceramics gas diffuser	54-5-20

10b Torch necks: Checking fixtures



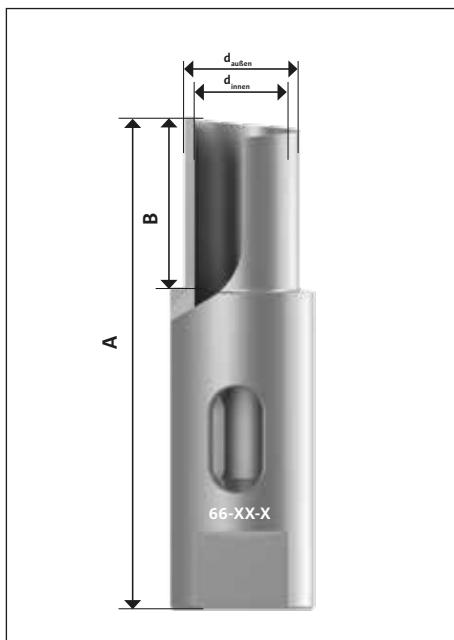
Checking fixture to check TCP of torch necks and the complete torch system.

Checking fixtures are available for all listed torch necks with Dual Wire 2.0 torch system. Please contact us for detailed information

Please note:

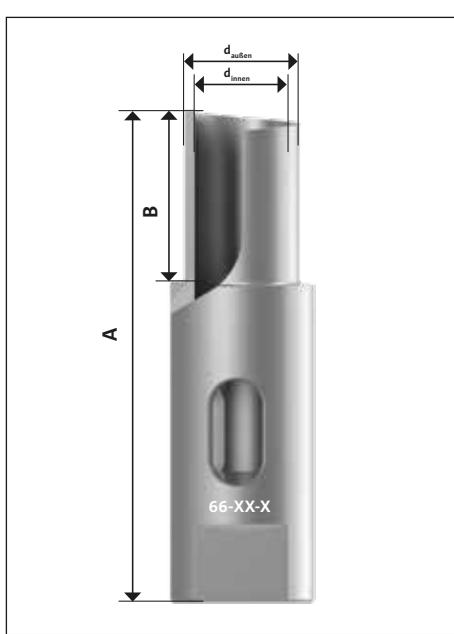
Further information can be found in our brochure "Checking fixtures" (DOC-0137EN).

10b Torch necks: Reamer blades



Reamer blade (internal thread UNF 3/8" x 24)

Overview of reamer blades	flush	long		
Inner diameter of the gas nozzle	Part-No.	Part-No.		
18 mm	66-18-F	66-18-R		
20 mm	—	66-20-R		
Dimension A	Dimension B	Dimension d_{outer}	Dimension d_{inner}	Part-No.
75	21	17,5	14,5	66-18-F
75	26	17,5	14,5	66-18-R
75	26	19,5	14,5	66-20-R



Reinigungsfräser (Innengewinde M10 x 1 – eReam)

Overview of reamer blades	flush	long		
Inner diameter of the gas nozzle	Part-No.	Part-No.		
18 mm	67-18-F	67-18-R		
20 mm	—	67-20-R		
Dimension A	Dimension B	Dimension d_{outer}	Dimension d_{inner}	Part-No.
79	21	17,5	14,5	67-18-F
84	26	17,5	14,5	67-18-R
84	26	19,5	14,5	67-20-R

Please note:

Dimensions in mm.

10a Torch necks: Tools



Tool for lock nut (at cooling jacket)

Tool for lock nut	Part-No.
Tool for lock nut	54-5-70-3



Programming tips

Dual Wire programming tips for precise seam programming

Overview of programming tips	Part-No.
Stickout	
18 mm	542053400
20 mm	542053500
18mm (Dual Tip)	65-25
20mm (Dual Tip)	65-26

11 Water cooling



Water cooling

The SKS Dual Wire 2.0 torch system comes with two separate cooling circuits to increase the cooling efficiency. The first circuit cools down the consumables while the second cooling circuit cools down the torch neck. We achieve a better cooling effect with this separation. That because the reflected energy of the welded part can be dissipated easily. The heat at the gas nozzle is already reduced and doesn't reach the torch.

The cooling equipment consists of a water flow / return for the cooling jacket for cooling down the consumables, a water conduit for cooling inside the torch neck and a water cooler with two circuits. Additionally, the system has a water flow control for safemables.

Water cooler eChilly

The water cooler eChilly is active cooled and has two separated cooling circuits and provides best possible cooling efficiency next to the process. Up to two torch systems can be cooled independantly at the same time. Tank capacity 6.4 L.

Overview water cooler eChilly	Part-No.
Water cooler eChilly 1-special (active, two circuits)	541018400



Water conduit for Dual Wire 2.0 torch neck

The torch neck is cooled down from the inside. With this conduit the cooling unit of the torch neck is connected with the cooling circuit.

Water conduit for cooling unit of the torch neck	Part-No.
Water conduit for cooling unit of the torch neck	93-11-10

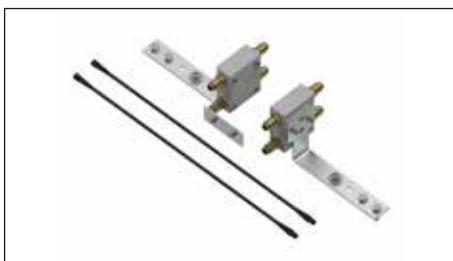
Water cooling conduit for cooling jacket

Conduit for cooling jacket to dissipate heat from the consumables.

Water cooling conduit for cooling jacket	Part-No.
Water cooling conduit for cooling jacket	71-8-16
Water lines (flow & return) torch to water module	71-8-23
Velcro® strip set (10 pcs. each 30 cm)	571040320



11 Water cooling



Water monitoring

For monitoring water flow

Water monitoring	Part-No.
Water monitoring	93-11-0

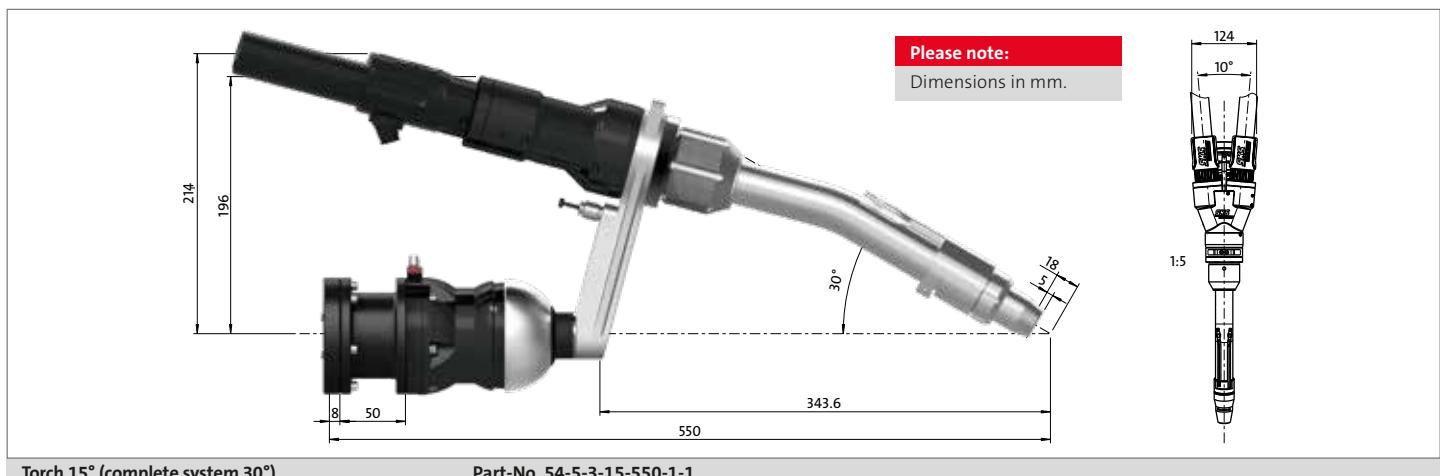


Water filter

Cooling fluid may be contaminated with small particles, affecting the cooling efficiency. The water filter filters these particles out of the cooling fluid.

Overview water filter	Part-No.
Water filter with inset	93-11-6
Inset (replacement part)	91-60-F1060691350
Glysantin G40, 1,5l bottle, for mixing 1:2	D-100-0159
Water hardness test strip	91-78-1

11 Torch necks: TCP dimensions



eReam 2.0 and pReam for a precise cleaning of the torch frontend



Further information can be found here:

Please note:

Further information can be found in our eReam 2.0 brochure (DOC-0205EN).



SKS

WELDING SYSTEMS



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